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The Early Bronze Age Dwellings in the Southern Levant

Deborah Sebag

The house is a strategic base for the study of any given civilization. By studying the habitations, it is possible to find indications of not only the way of life of its occupants, their social organization, their world view, their needs, their resources but also of the available technologies[1].

In this study, we will give a chronological presentation of the various types of dwellings through the Early Bronze age, in the Southern Levant.

It is during the Early Bronze Age (3100-2000 B.C.), that the first urbanization of Palestine occurs. The very first urbanization took place in Mesopotamia, in the middle of the 4th millennium B.C. The city is the symbol of the development of a new civilization, based on the dynamics between interdependent cities and villages, i.e. between one centre and its periphery. The study of the EB enable us to observe changes in the social organization, in particular the emergence of an elite. However, the urbanization was not a revolution, but it was a slow and gradual process, which started during the Chalcolithic, at the beginning of the 4th millennium B.C., and which accelerated towards 3000 B.C., with the transition from EB I to EB II. The reasons for this progressive transformation are multiple. They are economic, with the development of a sedentary agricultural way of life, and cultural, with the development of relations between Palestine and the countries of the Fertile Crescent and Egypt.

Palestine is divided into three climatic zones: the Mediterranean zone, the semi-arid zone and the arid region. The limit between these zones is marked by the isohyet of 250 mm of annual precipitation and its fluctuations. Indeed, the Mediterranean zone climate is above this isohyet and the arid region is below

[1] A. Rapoport, *Pour une anthropologie de la maison*, Collection Aspects de l'Urbanisme, Bordas, 1972, pp. 4-6.

this isohyet. However, there are annual fluctuations which create an unstable zone of climate; it is the semi-arid area (fig. 1, see p. 22). The EB is divided into four periods: EB I (3 500-3 100 B.C.), EB II (3 100-2 700 B.C.), EB III (2 700-2 300 B.C.) and EB IV (2 300-2 000 B.C.).

Despite the great number of dwellings excavated and their wide variety, distinct types of EB houses can be identified. If these types present similarities, they are due to climatic conditions, to the level of urbanization of the site, and to socio-cultural or ethnic constraints and not to a central authority of planning. Indeed, the differences in quality of construction indicate that the houses were built by private individuals, undoubtedly by the future owners and their families[2]. In some cases, the quality of construction implies a "professional" manufacturer. The existence of such professionals is not improbable; the construction of city walls or of palaces already implies their existence.

I did not include in this presentation the apsidal plan[3], even if it is very often mentioned in the EB archaeological literature. Indeed, many houses were described as being apsidal, but after an examination of the plans, these habitats are rather curvilinear, broadroom or rectilinear.[4] In fact, only one house seems to deserve the designation "apsidal", the level IV house of Megiddo. But only one example a plan is not enough to characterize an architectural tradition. Nor did I include the circular plan as we find it at Beth Shean or Jericho, because its identification as a habitation seems doubtful; they were rather used for storage. Lastly, I did not include the hut-type dwellings, as at Tel Ira,[5] or in Beth Shean,[6] simply because there are so few remains.

I. Early Bronze Age I

EB I is characterized by village cultures which share a great number of cultural and material features. The sites are unfortified villages with a low density of

[2] A. Ben-Tor, "Early Bronze Age Dwellings and Installations" in A. Kempinski, R. Reich (eds) *The Architecture of Ancient Israel from the Prehistoric to the Persian periods*. Jerusalem: I.E.S., 1992, p. 60.

[3] The apsidal architecture implies a rectilinear shape with only one apse.

[4] E. Braun, "The Problem of the "Apsidal" House: New Aspects of Early Bronze I Domestic Architecture in Israel, Jordan, and Lebanon". *Palestine Exploration Quarterly* 121, 1989, pp.1-43.

[5] I., Beit-Arieh, "Sinai, southern Sinai in the Early Bronze age" in Stern, E. (ed.) *The New Encyclopedia of Archaeology in the Holy Land,* Jerusalem, The Israel Exploration Society, volume 4, 1993, pp. 1397-1399; I., Beit-Arieh, "Excavations at Ramat Matred: an Early Bronze II site in the Neguev Highlands". *Tel Aviv* 26, 1999, pp. 76-91.

[6] B. Maisler, M. Stekelis, M. Avi "The Excavations at Beth Yerah (Kirbet el-Kerak) 1944-1946". *Israel Exploration Journal* 2, 1952, pp. 165-175.

population. EB I is characterized at the same time by elements of continuity with the previous period and by new elements. The fact that the EB I culture is determined by a strong cultural regionalism is a significant element of continuity. We also continue to observe the continuity of some architectural types like the pit houses, the troglodytes habitats and the broad-room houses. Meanwhile, EB I brings innovative elements, especially a new pattern of settlement. Indeed, during the Chalcolithic the inhabited zones were rather in semi-desert and desert zones. The majority of those sites were abandoned at the beginning of EB I, and new sites appear in the Mediterranean zone. This event is linked to a process of increased settlement. It is a phenomenon which produces a more compact organization of the habitats.[7]

At the beginning of EB I, the houses had to adapt to new economic data. These transformations began during the 4th millennium B.C. and accelerated in the course of the transition between Chalcolithic to EB I. The culture and the exchange of Mediterranean products was one of the central axes which allowed the emergence of an elite directing the economic and socio-political EB I life.[8]

Among the architectural types in continuity with the previous times are the troglodyte and pit-houses. The troglodytes do not have a standard plan. The habitat re-uses the natural features of the cave. In some cases, the walls are dug to increase the cave size, as in Lachish, or leveled in order to appear more flat. The troglodytes are not located in specific geographical areas. Their presence depends entirely on the topography of the site. They are in the Mediterranean zone, as in Gezer or Lachish, and in the semi-desert zone as in Arad. The use of natural caves, although marginal compared with the other types of dwellings, coexists with the rural or urban sites at all the times of occupation of Palestine.[9] The troglodyte dwellings were often employed again as burials, e.g. in Lachish, during Middle Bronze Age.

The pit-houses are dug by man. They are circular or oval (diameter: 2 to 4 m). They are dug to a depth of 0,50 m to 3,50 m in the ground. The floors can be coated. The superstructure was in cob or in bricks, as in Tel Halif.[10] But it

[7] E. Braun, *Cultural Diversity and Change in the Early Bronze I of Israel and Jordan, towards an Uunderstanding of the Chronological Progression and Patterns of Regionalism in Early Bronze I Society*, Dissertation presented to the Senate of Tel Aviv University. (non publié), 1996, p. 31.

[8] A.H. Joffe, *Settlement and Society in the Early Bronze Age I and II, Southern Levant: Complementarity and Contradiction in a Small-Scale Complex Society,* Sheffield Academic Press, Monographs in Mediterranean Archaeology 4, Sheffield, 1993, p. 82.

[9] A. Ben-Tor, *op. cit.,* p. 66.

[10] J. D. Seger, "Investigations at Tell Halif, Israel 1976-1980" *Bulletin of American School of Oriental Research* 252, 1983, pp. 1-23.

also could be out of fabric, forming a kind of tent superstructure. We find the pit-houses in all the geographical areas, in both the Mediterranean zone, as in Beth Yerah[11] or Tel Halif, and in the semi-desert zone.[12] In Tel Halif, there is a concentration of several pit houses forming a hamlet. The pit-house type is very old; the origin goes back to the Kebaran (17000-10500 B.C.) and the Natufian periods (10500–8800 B.C.). It is not a regressive form of architecture, but an economic way of life. Indeed, it is easier to excavate than to build. It is less expensive in terms of energy and raw materials, especially in areas where the wood resources are missing. In spite of its weak diffusion, this type of architecture will be perpetuated until Byzantine times and even until the contemporary period.[13]

Meanwhile, in the villages, most of the houses are broad-rooms. Ben-Tor defines some essential characteristics of these houses: a main broad-room building (from 2,75 to 5 m wide and from 5,50 to 10 m long), often connected to subsidiary rooms; benches along the walls (0,30 to 0,40 m in width); a sunken floor with access via two or three steps; a stone column base; an entry located on a long side (0,60 to 0,70 m wide) and an enclosure[14]. Inside some houses we find also platforms, silos, pits and hearths. This unit was always connected to a court. We can observe the lack of windows, the air and the light came only from the entrance door. The materials used are always from local sources. The interior space of the house is often divided using cross-walls.

The broadroom plan was identified in En Shadud (fig. 2, see p. 26) and Tel Dalit, but without the connection of a broadroom with a court. This type of plan which associates a broad living-room to a large court is a direct descendant of the Chalcolithic shepherd house (Tel Teo, level VI). These dwellings are associated with a way of life based mainly on domesticated animals.

For Ben-Tor[15], there is an obvious parallel between this plan and the plan used for the realization of sanctuaries like the Twin Temples (layer XIX) and the sanctuaries (layers XV and XVI) of Megiddo;[16] the temple of layer VIII of

[11] R. Hestrin, "Beth Yerah" in E. Stern, (ed.) *The New Encyclopaedia of Archaeology in the Holy Land,* Jerusalem: IES, volume 1, 1993, pp. 255-259.
[12] J. D. Seger, 1983, *op. cit.* pp. 20-23.
[13] J. Perrot, "Structures d'habitat, mode de vie et environnement des villages souterrains de pasteurs de Beershéva dans le sud d'Israël, au 4e millénaire avant l'ère chrétienne". *Paléorient* 10, 1984, pp. 75-92.
[14] A. Ben-Tor, *op. cit.* p. 64.
[15] *Ibid.*
[16] Y. Aharoni, "Megiddo" in E. Stern, (ed.) *The New Encyclopaedia of Archaeology in the Holy Land,* Jerusalem: IES, volume 3, 1993, pp. 1002-1024; G. Loud, *Megiddo II seasons of 1935-39*, (=OIP 62), Chicago, 1948.

Jericho; the EB II Arad sanctuary; the EB II Ai temple on the Acropolis; and also the collective tombs of Bab-edh-Dhra (EB II and III). Thus, the extention of this plan to religious and funerary architecture can prove its indigenous origin.

In the EB villages of En Shadud, Tel Teo, Yiftahel, Tel Kabri, Mezer, Palmahim Quarry and Qiryat Ata, the dwellings are scattered without organization. The infrastructure of the village indicates two levels of social organization: the community and the nuclear family.

During EB I, there is also a curvilinear architecture. It is, by definition, made of curved walls. A rectilinear building with some round corners cannot be described as curvilinear. This type of architecture is present in a vast area which includes the north of Israel, part of Jordan and the Lebanese littoral. The site of Byblos marks the northern limit of this architecture, and the eastern limit is the site of Jebel Mutawwaq. In the South, we find some examples as far south as Modiin, in the vicinity of Jerusalem. In Mezer, Palmahim Quarry, or Yiftahel, the EB I curvilinear houses follow directly the rectlinear Chalcolithic houses. In Kabri, Mezer and Qiryat Ata (fig. 3, see p. 26), the EB I curvilinear levels themselves are directly followed by rectilinear levels, from the end of EB I or the beginning of EB II.

The houses measure from 6 to 16 m long and 5 to 8 m wide. The walls have stone foundations and a brick superstructure. In many houses, space is divided by small curvilinear cross-walls. They divide the space into three, with a central space and two small spaces in the apses. The floor is beaten clay. In Yiftahel, Qiryat Ata, Tel Teo, Mezer and Kabri, the two apses were paved with small flat stones. In Palmahim Quarry the floor of the central space is paved, and in Jebel Mutawwaq the floor is entirely out of beaten clay. In Jebel Mutawwaq and in Qiryat Ata (building A), we find bases of stone pillars laid out along the longitudinal axis. The pillars must have been of wood and supported a light roof. But on all the other sites, there are no trace of such stone pillar bases. Thus, Braun, the excavator of Yiftahel and Palmahim Quarry, supposes that the pillars were of clay and completely vanished.[17] However, the span of these houses is narrow, and maybe there was no need of pillars, as the excavators of Sidon-Dakerman think (fig. 4, see p. 28).[18]

Generally, inside these houses there are few installations. When present, they are often concentrated in the paved apse area. The house can also be connected

[17] E. Braun, "Yiftahel: salvage and rescue excavation at a Prehistoric village in Lower Galilee", *Israel Antiquities Reports* n°2, 1997, p. 24.
[18] R. Saidah, "Fouilles de Sidon-Dakerman : l'agglomération Chalcolithique". *Berytus* 27, 1979, pp. 29-55. figs. 9, 10.

to external installations like small circular structures (Mezer, Yiftahel, Palmahim Quarry). Only some houses are connected to a court.

The occupation of the houses was undoubtedly short, because we observe several phases of construction superimposed, one over the other, in a short chronological period. The houses are organized in villages of about ten houses, except in Jebel Mutawwaq, which contains 250 houses surrounded by a fence wall. Even if Jebel Mutawwaq presents many similarities with the Palestinian sites, it shows also significant differences because of the fence. It also resembles to Sidon-Dakerman (Liban),[19] Byblos (Liban)[20] or Chraya in the area of Léja, in the south of Damas.[21] The question of the origin of the curvilinear plan remains unsolve. The oldest examples were found in Byblos, at the beginning of Late Enéolithique (fifth millenium B.C.) and in Sidon-Dakerman, during the Chalcolithic. It is clearly related to villages like Yiftahel. The model would have spread during EB I in Transjordan and in the North of Palestine. In any case, the arrival of this architectural model is part of the EB I cultural sequence with an increased number of sites. It is a not easily quantifiable phenomenon which seems to be the result of the settlement process of populations which formerly practised nomadism.

Curvilinear architecture is frequently associated with the Esdrelon type ceramics. Both are the reflection of a new material culture linked to the arrival of a new population in the north of Palestine at the beginning of EB I. Indeed, the choice to build curvilinear houses is entirely cultural, because this type of plan did not exist before and disapeared afterward. Moreover, to build curvilinear walls with rectangular bricks is a true technical challenge. In addition, the ethnoarcheologists point out that "the introduction of new architectural types on a site should not be necessarily explained by brutal changes of civilizations due to conflicts. It can be the result of more subtle influences, such as the adoption of "trends" which translate the cultural value of architectural phenomena ".[22]

'En Besor and Tell es-Sakan are special sites because of their method of construction; indeed, we notice the lack of foundations. The walls are laid directly in a small foundation trench. This technique of construction comes from the Delta of the Nile. The walls are made entirely out of raw bricks laid in stretchers and headers. The dimensions of the bricks are very particular: in Tell

[19] A. Ben-Tor, *op. cit.* pp. 61-62.
[20] R. Saidah, *op. cit.* p.32.
[21] C. Nicolle, "Projet d'atlas archéologique des sites préclassiques de Syrie du Sud, la campagne de Chraya 2002" *Orient-Express* 4, 2002, pp. 99-100.
[22] O. Aurenche (éd.), *Nomades et sédentaires perspectives ethnoarchéologiques*, ERC, "Mémoire" n° 40, 1984, Paris, p. 15.

es-Sakan they are 0,12 x 0,24 m, corresponding to an Egyptian cubit; in 'En Besor the bricks are 0,08 x 0,12 m.

The buildings are the reflection of particular relations, at a given moment and during a short period, between the Canaanite and the Egyptian civilizations. The presence of these buildings is one of the stages of these relations which started during the Late Chalcolithic, the time of Naqada I in Egypt. The relations intensified at the beginning of EB I – Dynasty "0" – and they led during the second half of EB I to the creation of typically Egyptian settlements like Tell es-Sakan or 'En Besor. They are kinds of lodges or fortified towns – Sakan is fortified – located on a trade route. These sites disappear at the end of EB I. Meanwhile, the contacts persist between Egypt and Palestine, but they were different and conducted directly between the first Egyptian dynasties and the new Canaanite city-states.

The material culture of these sites reflects Egyptian tradition, either imported or produced on the spot. These objects are also found in Canaanite sites like Tel Erani. The existence of these settlements thus served a specific function related to the progressive emergence of an Egyptian centralized administration: it required raw materials and exotic products, and Palestine was a producer of those products.[23] Moreover, these sites do not appear abruptly; there are precedents in the south of the Coastal Plain in the middle of the 4th millennium B.C. during the civilization of Lower-Egypt called "Maadi".[24]

Even if EB I is located in the continuity of Late Chalcolithic, it shows a turn in the architectural tradition. Indeed, the plans stay the same but they are more suitable to more densely settled. The curvilinear and the Egyptian architectures are specific reflections of the relations and exchanges which develop at this period between Palestine and its close neighbours.

II. Early Bronze Age II-III

EB II-III is characterized by the development of the urbanization phenomenon, even if it is not uniform through all the Southern Levant. Some sites are already urbanized at the end of EB I, whereas others reach their urban stage only with EB II or III.[25]

[23] P. de Miroschedji, «Les premières cités-états cananéennes" *Dossiers d'archéologie* 203, 1995, pp. 81-100.
[24] *Ibid.*
[25] Z. Herzog, *Archaeology of the City, Urban Planning in Ancient Israel and Its Social Implications*, Tel Aviv University, Institute of Archaeology, Monograph Series N°13. Tel Aviv, 1997, pp. 42-43.

During EB II the population continues to settle, and there is a concentration of inhabitants in a restricted number of sites, which are fortified. The fortification of sites like Ai, Jericho, Tell el-Far'ah or Tel Yarmouth is the reflection of a new form of social organization: the city-state. It is a time of great development in the Mediterranean economy. On some sites there is a stratigraphic continuity with the previous period (Ai, Jericho), while some others are newly settled.

The urbanization is not without consequences for the habitats. Indeed, rectilinear architecture is perfectly adapted to an urban space which becomes denser. Its plan is flexible according to the space available, and it can easily be expanded, according to needs of the family.

From an architectural point of view, the greatest transformation of EB II is the construction of walls around sites. That creates clearly limited spaces. The fortification is the symbol of the existence of a ruling class which can gather collective energies. The effects are on the economic level, with the control of the products entries inside the cities. It also involves the centralization of the socio-economic activities inside the site.[26]

In some cases we observe the construction of the fortification before the construction of blocks of dwellings, and in other cases we observe the destruction of houses for the construction of the ramparts. In all cases, the fortification takes precedence over the dwellings, which will be built or rebuilt according to the line of the rampart[27]. In Tel Dalit, Tell el-Farah (fig. 5, see p. 33) and Ai, the houses follow the layout of the fortifications.

In the cities, there are, at the same time, monocellular and pluricellular houses. The monocellular houses are rectangular (from 5 to 6 m length, and 3 to 4 m wide). They open onto a street or a common court.[28] The lack of communication between adjacent rooms can be a clue to the presence of two distinct domestic units, but often it is difficult to isolate a domestic unit in a small block. This is the case in Tel Yarmouth, where the architecture is so dense that it suggests the small block could be inhabited by the same family grouping or the same lineage (fig. 6, see p. 34). In some cases, as in Numeira, in EB III, urban density is so great that the monocellular habitats do not have any more court. They use, instead for example, the street, when it is a dead-end, as an extension of the house (fig. 6, see p. 34). It leads to situations of agglutination of

[26] A. H. Joffe, *op. cit.* pp. 68-71.
[27] *Ibid.*
[28] R. de Vaux, "Les fouilles de Tell el-Far'ah" *Revue Biblique* 68, 1961, pp. 576-592.

the habitats which translate a high level of social integration, more significant than in a village.[29]

Inside those small blocks of dwellings, the houses are most usually rectilinears. However, it happens that the houses are deformed by the urban pressure. We find triangular or square houses. But generally, the habitats are so grouped that it becomes difficult to differentiate the rooms and the courts (fig. 5, see p. 33). The most typical house in this urban environment is composed of a room and a court, with, in some cases, a more modest subsidiary storage room.[30] If the urban space is too dense it happens that there is no court. The activities which took place there would then be moved into an adjacent lane (as in Numeira) or perhaps on the roof.

There are pluricellular dwellings through the EB, both in the villages (as in Beth Shean, Mezer and En Besor) and in cities like Tell el-Far'ah, Ai or Tel Erani, where these habitats are integrated in a dense urban space. The number of rooms range from two to five, the average being around three rooms. The fact that the interior space of the house is subdivided indicates the beginning of domestic space specialization.

Some of these very large houses could have been inhabited by extended families or by elite families. For the moment, the main clue is provided by the large-sized houses. These houses are known as "patricians"; they are in fortified sites like Tel Yarmouth (the "White Building"), in Tel Nagila, Ai, Tel Erani (house 232) or in Tell el-Farah (La maison des Jarres) (fig. 7, see p. 37). The name "patrician house" is due not only to their dimensions but also to the particular care taken during their construction. These houses were maybe inhabited by populations with a special social status. The extreme case of these patricians' houses is reached with the construction of palaces, like in Tel Yarmouth, Megiddo or Ai. However, these are no longer houses but rather instruments of political and economic control. They prove the existence of the first local monarchies in Canaan.

Whereas some significant sites had already disappeared by the end of EB II, some do not reach their apogee until EB III.[31] Thus, Tell es-Sakan is re-occupied by Canaanite populations and it is fortified again. Numeira is also fortified during EB III, like Tel Halif. However, there is a great continuity between EB II and III, with the same phenomenon of fortified cities.

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[29] A.H. Joffe, 1993, *op. cit.* p. 68.

[30] P. de Miroschedji, *Contribution à l'étude de l'urbanisation en Palestine à l'âge du Bronze Ancien*, thèse de doctorat, Paris I (Panthéon-Sorbonne), Paris, 1976 (non publié), pp. 90-91.

[31] Herzog, *op. cit.* pp. 77-78.

The first urban revolution played a great role in the evolution of the habitats. For the first time, people had to deal with a closed space. The habitats then would gather and be organized in small blocks, surrounded by lanes. The habitat is then reduced to its simpler expression: a living-room and a court.

In the south of Palestine there were other ways of life more centred on animal husbandry and implying other types of architecture, in particular in Arad and in the Sinai. After its excavation, the site of Arad was re-studied by researchers[32] who wanted to discuss the interpretations of Ruth Amiran. She thought that "house of Arad" was an absolute model.[33] Its main characteristics were a broad-room shape, an entry located in the middle of a long side, and a sunken floor. But the question should be re-cast, because the problem is not at the building level, but rather at the level of thewhole domestic unit. Indeed, it is an error to look at the typical house of Arad as a house with one building. On the contrary, according to the studies of Marfoe, the dwelling of Arad is essentially made up of several units gathered around a court. The broad-room building is only a part of a whole. Comparison with the ethnoarchaeology of former nomadic populations in the process of settling reveals many shared points. Indeed, at the time of the second stage of settlement process, there is a specialization of domestic space. Each building "tends to house only one function (living, storage, shelter of animals...)".[34] Generally, all the plans consist of an assembly of rooms gathered around a court, sometimes with an enclosure (fig. 8, see p. 38). In Arad field M, we observe the regrouping of four to five buildings around a court. In addition, the city of level III gives the impression of a village surrounded by an enclosure. In the same way, the plan of level II, which is the apogee of the urban development of Arad, does not seem to be occupied in a very dense way (fig. 9, see p. 39). Thus, after study of its habitats and its town planning, Arad seems to be an isolated case of a village occupied by recently settled populations, but already urbanized, because the site is fortified. It is a hybrid city: half-camp, built in stone, half-city.

In the desert zones, there is the "cluster-house" type. This type of architecture is present in small sites located exclusively in the Sinai and in the Negev, dated to the EB II (fig. 10, see p. 40). This type of plan is divided into two types: the first type consists of a vast court surrounded by many small parts, and the second is made up primarily of an enclosure.

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[32] L. Marfoe, "Review» *Journal of Near Eastern Society* 39, 1980, pp. 315-322; Z. Herzog, *op. cit*. pp. 42-62.
[33] A. H. Joffe, *op. cit*. p. 71
[34] O. Aurenche, P. Desfarges, "Travaux d'ethnoarchéologie en Syrie et en Jordanie, rapports préliminaires". *Syria* 60, 1983, pp. 147-185.

The first type is located in sites in the Negev and in the entire peninsula of the Sinai, as in Ain el-Qudeirat, Feiran 1, Nabi Salah, Ramat Matred and Sheikh Muhsein. These sites are close to water sources and to the roads which follow the main wadis. They are made of domestic units arrayed around a court, which forms a more or less circular site (fig. 11, see p. 41). These domestic units consist of six to nine living rooms and from ten to fourteen subsidiary rooms. The court is also used as an enclosure for animals (goats, sheep). The rooms are oval, rectangular or trapezoidal. Their entry is from 0,55 to 0,60 m wide; it is flanked by two monoliths 0,75 to 2,20 m in height and has a stone threshold. The floor is located from 0,20 to 0,60 m lower than the court, with one to six steps leading inside. There are benches along some walls, as in unit A of Nabi Salah. Some basins used for storage of the food were found in the corners, as in Sheikh Muhsen. We very often find in the centre of the room a stone slab being used as a pillar base, or a pillar made entirely out of stone is found collapsed. The subsidiary rooms differ from the living-rooms in their size, their form and their techniques of construction. These rooms are circular, paved with stone slabs, and some are subdivided by stones on the edge. The floor is at the same level as the court. There are no pillar bases and no benches[35]. These subsidiary rooms were used as workshops or as storage rooms. Thus, in Feiran 1 the archaeologists think that one room could have been a workshop, because a crucible containing oxidized copper remains was found inside.

The rooms are organized around a court which measures on average 12 x 15 m. Some measure more than 20 m long, like in Sheikh Muhsen. These sites were occupied temporarily by nomad who practiced not only pastoralism but also trades; some copper, mother-of-pearl and shell from the Red Sea were found. These sites were inhabited by extended families.[36]

For Beit-Arieh, the main excavator of this type of site, they are related to the Arad and the Canaanite culture.[37] First of all, there are architectural similarities (sunken floor, benches along the walls, steps, stone pillar-bases) and artefact similarities. This was confirmed by ceramic petrography studies showing ceramics of comparable nature coming at the same time from Arad and from the Sinai. In both cases, they revealed the presence of granitic Sinai clay. In all the

[35] I. Beit-Arieh, "Buildings and Settlement Patterns at Early Bronze Age II sites in Southern Israel and Southern Sinai" in A. Kempinski, R. Reich, (eds.) *The Architecture of Ancient Israel from the Prehistoric to the Persian periods*. Jérusalem, IES, 1992, p. 81.
[36] I. Beit-Arieh, "A Pattern of settlement in the Southern Sinai and southern Canaan in the Third Millenium B.C." *Bulletin of American School of Oriental Research* 243, 1981, pp. 31-55.
[37] I. Beit-Arieh, «Central-Southern Sinai in the Early Bronze Age II and its relationship with Palestine" *Levant* 15, 1983, pp. 39-48.

cases, we find very little – less than 0,05% – Egyptian ceramics (from the 1st Dynasty). It proves the existence of the same cultural tradition, indigenous to the South of Palestine.

The second type of sites, the units with enclosure were excavated in Gebel Gunna, in the surroundings of Ain Kid, and in many other small sites all along the East coast of the Sinai Peninsula and in the West around the oasis of Feiran[38]. Beit-Arieh divides these sites into two categories. The first one is made up of a round enclosure attached to one or two round or rectangular rooms, like the site 1332 (Ain Kid). The second category is made up of a round enclosure with small compartments inside (from 1 to 1,5 m in diameter). In some cases, an additional room is attached to this enclosure, like site 1345 of Ain Kid.

The enclosures measure from 35 to 129 m² and are more or less rectangular, as in sites 1332 and 1333 of Ain Kid; oval as in Gunna 25; or round as on site 1345 of Ain Kid. Generally, the floor is covered with organic material (manure). The walls are preserved to a height of one or two courses; the foundations are not very deep. The superstructures might have been of leather. The constructions were build with little care. In Gebel Gunna 25 we find some installations: bench, silo, stone basin. In the other sites excavated by Beit-Arieh we do not find domestic installations.[39] In both cases, there are no columns, entrance monoliths, stone pillar-bases, nor benches. The architecture and the poverty of the artifacts suggest that the sites were inhabited by populations different from those which lived in the other sites of the Sinai. They were occupied by local semi- nomadic populations, which explains the presence of the central enclosure where the tent would have been set up. However, the presence of some Canaanite shards proves that the two populations practiced trade.

Thus, there were two major types of "cluster-type" sites. Both are dated exclusively to EB II and are located in zones of desert climate. The first type of settlement was occupied by populations of Canaanite origin, directly in connection with Arad, and the second type of site was occupied by indigenous populations. In both cases, we find characteristics typical of the semi-nomadic way of life : location of the site close to an oasis, like in Feiran; the presence of a vast enclosure for the herd and for the tent; and a poor quality of construction. The site was occupied only in a very short time.

[38] I. Beit-Arieh, «Two Cultures in the Southern Sinai in the Third Millenium B.C." *Bulletin of American School of Oriental Research* 263, 1986, pp. 27-54, fig.1.
[39] *Ibid.*

Conclusion

If we observe the transformations of the various dwelling plans during the EB Age, we can notice that the general development goes in the direction of a better adaptation of the plan to its environment. On one hand, even if the construction of the habitats were not subjected to the same constraints as the construction of the temples or the palaces, they nevertheless had to conform to preconceived ideas, to have an acceptable cultural form. If the architectural form was new, it had to contain some culturally essential elements, like storage space or court. In addition, on a site occupied over a long span of time the plans had to integrate the pre-existing rooms, and on the urbanized sites the plan also had to be the result of the most efficient possible occupation of space.

If we look at the theoretical sequence of urbanization in Palestine proposed by Miroschedji[40] (fig. 12, see p. 43), we can allot a type of habitat to each phase: settling, village, urbanization. During the settling phase, there is the creation of new sites and the occupation of the territory is loose. The housing units consist of rooms gathered around a court. The house tends to be broadroom, like the shape of a Bedouin tent. The habitat shows the traces of the agricultural and breeding activities practised by its occupants. The village stage is a phase of consolidation and expansion of the settlement. The habitats tend to cluster, the practice of agriculture tends to develop, and rectilinear architecture remains the rule, even if we can observe local variations. At the urban stage, the habitats have a reduced area. They remain rectilinear but reflect the pressure on the urban space which increases with time. This model apply to the EB Age, but it can undoubtedly also adapt to the second urban phase in the Middle Bronze Age (2 000- 1 600 B.C.).

Thus, we see three major variables which can influence the habitats and their shape. The most influential variable is economic, because the way of life guides the composition of a house. The urban factor applies in the case of the fortified sites of EB II and III. And the cultural factor remain rather anecdotal at this time. Thus, the architectural data enabled us to grasp the interactions and the relative importance of the natural environment, the way of life, the technological level of development and the socio-cultural traditions in the formation, the evolution and the stabilization of the types of dwellings.[41]

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[40] P. de Miroschedji, "Le processus d'urbanisation en Palestine au Bronze ancien : Chronologie et rythmes" in Miroschedji (éd.) *L'urbanisation de la Palestine à l'âge du Bronze Ancien, Bilan et perspectives des recherches actuelles. Actes du colloque d'Emmaüs (20-24 octobre 1986),* 1989, *Part i*. BAR International, Série 527 (i), Oxford. Fig. 1, p. 73.

[41] J. Perrot, *op. cit*. p. 75.

Finally, the most significant of the variables remains personal choice. Indeed, the opinion of the future owner is not to neglect, he had to made the plan of its future house. Moreover, T. Canaan notes in his ethnographic observations of Palestine that for the construction of all the houses, until the beginning of the twentieth century A.D., the villagers called upon architects only infrequently, for example to build a large house. The architect was then a mason, simply more experienced, helped and supervised by the future owner of the house.[42]

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[42] T. Canaan, "The Palestinian Arab House; its architecture and Folklore" *Journal of the Palestine Oriental Society* 13, 1933, pp. 1-83.